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By Rafael Ramos Da Costa, Dr. Alexandre Assaf Neto & Dr. Fabiano Guasti Lima

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Strictly as per the compliance and regulations of:



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Rafael Ramos Da Costa ^α, Dr. Alexandre Assaf Neto ^σ & Dr. Fabiano Guasti Lima ^ρ

Abstract - The article investigates the dividend policy profile of the companies which voluntarily listed themselves in the BM & FBovespa New Market segment, which is seen as the strictest one concerning the best practices of corporate governance in the stock Market. The aim is to check whether the moves in the Brazilian Stock Market to promote greater transparency, equity in the treatment among the shareholders and adherence to the best practices of corporate governance reflected in dividend decisions which pursued the maximization of shareholders' wealth. Therefore, the conceptual model of Dividend Residual Theory, first established by Modigliani & Miller (1961) and reviewed by Jensen (1986) in the Free Cash Flow Theory, was used. Thus, through multivariate statistical techniques, it was evaluated how these companies administered the Free Cash Flow to Equity during the whole working period of the segment up to 2011. Moreover, it was sought to observe whether the decisions on the FCF caused impacts in the shareholders' profitability, expressed by the Share Rate of Return (SRR). As a result, it was seen that a great part of the companies presented high level of overinvestment in the period, provoked by the FCFE holding, and that such a problem could have been the cause of a smaller SRR in some sectors.

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I. INTRODUCTION

According to the company theory, the company is a contractual relation nexus between its several participants (COASE, 1937). In these contractual relations, which are not perfect, agency problems come up, due to information asymmetry and interest conflicts between the contracted and contractor in the case, agent and principal (JENSEN & MECKLING, 1976).

Thus, when there is the intention to align the interest between them, the corporate governance comes up, acting as a way to minimize the conflicts and existing differences as well as correct flaws present in the communication and information process of the companies. Therefore, the corporate governance is the field which deals with the set of relations between the direction of the companies, their counseling management, their shareholders and other interested parts, working as a tool through which the corporate capital providers are assured of their investment returns (SHLEIFER & VISHNY, 1997).

In Brazil, some institutional and governmental measures have been taken along the last decades aiming to contribute with the evolution and dissemination of their practices in the companies. One of those initiatives was the creation, in 2000, of the New Market segment by the BM&FBovespa, composed of rules and increasing requirements concerning the good governance practices, among them, the issuing of only one share class, common shares with voting rights.

In this sense, it is consistent to think that the dividend policy, which was at first influenced by the need of acting as a tool of conflict reduction between common and preferred shareholders as well, started to be decided from a predominantly managerial focus by the companies of this segment, that is, from the financial point of view of the shareholders' wealth maximization.

Therefore, the article proposes to check if there are problems of overinvestment in the companies studied, caused by the free cash flow to Equity holding and demonstrate whether it impacts the shareholders' profitability, reflected in the share return rate, as the Jensen's Free Cash Flow (1986) foretells.

II. DIVIDENDS

a) Dividend Residual Theory

Probably, the first description of the dividend residual policy in the academic literature was written by Preinreich (1932), who proposed an ideal dividend policy as that one which distributed the total wealth increase generated by the company in regular intervals, through the part of the profits which could not be reinvested (BAKER, 2009, p. 115)

However, Modigliani & Miller (1961) were the ones who ended up consecrating this idea, by naming it dividend residual theory, since it is a residual decision to the investment decision. In summary, the theory explains that the managers must reinvest the income generated by the company only in projects with positive net present values (NPV) and, only after all the possibilities have ended, they must pay the "residual" amount of the cash as dividend.

Nevertheless, the individual preferences of the investors and the timely moment for consuming their wealth are not taken into account. Thus, for this whole logic to take place, the authors adopted some premises creating a hypothetical stock Market, in which: (a) no agent would be able to affect the price of the shares

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with purchases or sales; (b) there would not be informational asymmetry and transaction costs; (c) it would be constituted of just rational investors, with identical behavior and preferences.

With these restrictive premises adopted by the authors at the time, they ended up not considering the financing sources either. Therefore, from the abandonment of these assumptions concerning the perfection of the Market by other authors, the dividend decision also started being considered as "residual" the financing decision.

Thus, the decision of dividends depends not only on the investment and financing decisions but also interferes on them. That is, a company can decide on the distribution of its profits simply due to the fact it does not have investment projects which offer a return above the minimum required by the partners, turning the dividend decision into a by-product of investment decisions. Or the company can also decide on the reduction of the percentage of equity in relation to third party funds, distributing dividends to seek an optimal combination of capital structure, that is, the one that minimizes the total capital cost. In this context, the dividend decision becomes a by-product of the financing decision.

Relating the dividend, investment and financing policies, Myers (1984) verified that the companies adjust the dividends payout towards preset targets, according to their future investment opportunities, and seek this level in the same way as they seek a better level of indebtedness. Therefore, in a period of financial difficulties, a company must adopt a more defensive posture of profit distribution. Thus, for poor profitable and highly leveraged companies, the payment of dividends is not recommended. In this case, according to the author, considering the presence of financial restriction, it is preferable to hold more profit as source of financing of new investments than seek external financing, offered at a higher cost for companies in this condition.

Finally, besides these aspects involved in the definition of the target index of dividend distribution, another factor that also affects the whole dynamics presented is all the problems elapsed from the agency conflicts, discussed by the Free Cash Flow theory.

b) *Free Cash Flow Theory*

In the relation between agents, in which there is as premise the inexistence of complete agreement (1) and the inexistence of perfect agent (2), the dividend policy can generate problems of agent conflicts, mainly in large companies, where there is the separation between property and control, provoked by the dispersion of capital.

In them, there is conflict of interests between the internal agents, in this case managers and controlling shareholders, and the external agents, as the

minority shareholders and creditors. In Brazil, because of the negotiation traits of its stock Market, two more figures are added between these agents, the common and preferred shareholders.

According to Jensen & Meckling (1976), the main reason of the origin of these conflicts is the lack of the investors' (mainly in countries which do not offer an appropriate legal protection to the shareholder) ability, mechanism or incentive to control all the activities of the administrators, including those related to the allocation of the company's profit

Illustrating, at a certain moment, these administrators can, due to several reasons, obtain incentives to reinvest the company's profit in project with negative net present value or, even, reinvest the resources of the company besides the necessary amount, which researchers such as Lang & Litzenberger (1989) call "*overinvestment problems*", harming the distribution of "Residual" cash available for dividends to the shareholders.

Testing this condition, these two last authors carried an important study through a sample containing 429 announcements of changes in the dividends of North-American companies from 1979 to 1984. In this study, they were able to check which companies, with excessive investment, increased, consequently, their market value once they decided to raise their payout levels. Moreover, they detected that a reduction in the dividend payout by this companies signaled to the Market that the investment projects with negative net present values were being undertaken, corroborating, therefore, the hypothesis that changes in the dividends of the companies with overinvestment signal information on the company's investment policy.

Kallapur (1994), also investigating whether the managers reinvest the accumulated profits in projects with negative NVP, carried out a study with 112 companies in the United States. As a result, he verified that the return on these accumulated profits was below the estimated rate required by the Market.

Thereby, as stated by Jensen & Meckling (1976), the administrators tend to use the excess of free cash in investments which meet their own interests. Thus, raising the dividend payout to the shareholders would be a way to control the agency problems, since it would decrease the available cash and would make the managers be more efficient and insightful in choosing the investments.

Baker & Powell (1999) follow the same thought and understand that with fewer available funds, the internal agents are pressured to look for external financings for their projects, what somehow inhibits the capital invested in questionable investments, since there is an insightful evaluation by the external agents.

Jensen (1986), the main proponent of the principal *Free Cash Flow* theory, arguments that the managers can have incentives to increase the growth

pace of the company above the level considered as optimal, transforming it into an even bigger company, where the funds under its control will be plentiful and the rewards will be greater. Thus, as a solution to this and other enumerated problems, he proposed a measure to reduce the discretionary power of the managers on the funds generated by the companies, formulating the measure of the Free Cash Flow to Equity (FCFE).

According to the mensuration, the Free Cash Flow to Equity represents the value that a partnership can and must distribute. In other words, it is the excess of cash which can be returned to the shareholders at the end of a period, after all the costs and expenses incurred and, also, all the investment needs have been met.

Therefore, the main implication of the *Free Cash Flow* theory is that the cash incremental disbursement must increase the value of the company when reducing the possibilities of occurrence of overinvestment problems.

c) *Corporate Governance and Dividend Policy*

It is observed, in the literature, an increasing appearance of researches investigating the connection between corporate governance and dividend policy. In this association, the main goal is to investigate how the governance mechanisms influence the dividend policy of the companies.

An important study in this field, relating the dividend policy with the legal environment of the countries, was carried out by La Porta et al. in 2000. According to them, in countries with weak legal protection, the companies tend to keep a regular dividend payout along the time as a way to create good reputation with investors. On the other hand, in countries with good legal protection, this reputation mechanism is not necessary, so the companies have more autonomy in the definition of their payout levels. Besides, in these last countries, the companies with good growth perspective have greater legitimacy in paying less or no dividend.

Another point explored is the influence the ownership structure of the great corporations has on the policy of profit distribution. According to Zeckhauser & Pound (1990), in a company whose capital is concentrated and the controlling shareholder is an institutional investor, what happens in a most of the cases, there is greater difficulty in closer monitoring the managers actions; consequently, there is greater pressure for the payout of dividends.

However, Shleifer & Vishny (1986), follow another path, when arguing that the majority shareholders, due to the fact they have more interest in the results of the company, have more incentives to monitor the managers more closely. Therefore, more active involvement of this group of shareholders in the businesses of the company ends up generating benefits

which reach all the rest of the organization, including minority shareholders.

Harford et al. (2008) checked that the companies in which weaker governance structure presented smaller cash reserves and that, when distributing proceeds to their shareholders, they opt to rebuy shares instead of increasing the dividends. Moreover, it was seen that companies with low shareholders' rights with excess of cash, presented lower profitability and evaluations. Finally, the authors stated that, in the United States, the results indicated a trend that the greater the shareholders' rights, the smaller the cash balance holding, contradicting the results of studies carried out in other countries. Thus, they concluded that the shareholders' rights of each country influence in conducting the cash in the companies.

In another way, by analyzing the relation between corporate governance and the utilization in investment projects in the American Companies, Billett et al. (2011) could see bad governance leads to excess of investment.

According to them, the problems of overinvestment were more evident in the companies with financial restriction and weak governance structure. Thus, they concluded that a good governance structure along with a good financial management is the means to mitigate the overinvestment problems.

d) *Dividends in Brazil*

It is important to highlight that the studies presented on dividends, their conclusions and the development of theories concerning the subject, were carried out and first tested in the United States.

However, when bringing these implications to the Brazilian scenario, it is necessary to consider the differences in the economical and institutional environment between both countries. Furthermore, the legal aspects the companies are subjected to, which directly influence the dividend policy, have their own traits in each nation.

In Brazil, besides the differences in the structure and development of the stock Market (where most of the studies on dividends are developed) compared to the North-American Market – number of companies listed in the stock exchange, volume of negotiation, liquidity and share concentration – there is also a great difference in the level of corporate governance systems between the two countries, being the U.S. model clearly more developed.

Another matter which deserves attention refers to the taxation matter on the dividends. In Brazil, with the advent of the Law 9,249/95, in 1996, the dividends do not suffer any taxation (3), while the same does not occur in the United States(4).

Besides all these aspects involved, it is also important to highlight some legal features concerning



the dividend policy here in Brazil, such as: (1) adjustments in the net profit for determining the basis of dividend calculation; (2) minimum required dividend in case of silent bylaws (5); (3) differences of tax rates between dividends and capital gains (6); and (4) presence of Interest on the Interest on Equity Capital as an alternative means of profit distribution to the shareholders.

Therefore, as it can be observed, Brazil has peculiarities which make the study on dividends even more complex and polemic. Moreover, while the study on dividends in foreign countries, especially in the United States, has been developing since the end of the 1950s, in Brazil, the discussions are more recent, and have been highlighted from the 1990s on, with the process of monetary stability.

III. RETURN OF THE SHARE

The value of company shares, despite restrict, is usually the most adopted measure by the traditional finances to show the objective of wealth maximization of the owners.

Nevertheless, it is important to highlight that for the Market price of a share faithfully represent a company's fair value, it will depend fundamentally on the development level of the stock Market where the company's papers are negotiated. In this sense, all the company's relevant information, which is necessary to establish future trends of its economical results, must be accessible and available to the whole Market.

Calling the attention to the companies listed in the New Market segment, it is sensible to think that, with the adherence to the best corporate governance practices and a greater level of disclosure in publishing information, there is an increase in the quality of share pricing of these companies, making its market value

closer to its fair value, which becomes a positive point for the research.

Anyway, inherent to these discussions, the shares offer essentially two ways to their holders: (i) Dividends and (ii) Capital gains. For the investor who wishes to receive current earnings of their investments, the Dividend payout produces a constant flow of cash earnings. On the other hand, for investors who are less worried about the cash results, the shares allow to receive Capital Gains by the appreciation of their prices in the market in a certain period

IV. METHODOLOGY

The research reckoned only on companies which disclosed financial statements in at least two years of the period studied, which is between the year after the company joined the New Market and the year it stayed on the segment, being the data extracted from the Economática® database.

These criteria were determined this way due to three factors: (1) the calculation of the variables of the research is performed in yearly basis, since the companies can have entered in the segment in different months of the year, (2) certain values of the balance sheet are used in their two-year average, and (3) certain financial indexes are calculated by the value variation from one year to the other one.

After meeting all these requirements, the total number of companies came down from 125 to 109 (exclusion of 12.8% of the initial sample), distributed in 21 sectors and with 428 total observations within the period. The sector division was done by combining the ranking of the BM&FBovespa with the ranking of Economática®, as demonstrated in the following table:

Table 1 : Research Sample

Sector	Number of Companies	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total Obs.
Agro and Fisheries	4	-	-	-	1	3	4	4	4	4	20
Water and Sanitation	2	1	1	1	1	2	2	2	2	2	14
Food and Beverage	8	-	-	-	1	3	7	7	7	8	33
Commerce	6	-	-	1	2	3	4	5	5	6	26
Construction	19	-	-	-	1	4	18	18	19	19	79
Electrical & Electronics	2	-	-	-	-	1	2	2	2	2	9
Electrical Energy	7	-	-	1	3	4	5	6	6	7	32
Oil Extraction	3	-	-	-	-	-	-	1	1	3	5
Finance and Insurance	5	-	-	1	1	1	1	2	4	5	15
Hotel	1	-	-	-	-	-	1	1	1	1	4
Real Estate & Others	7	-	-	-	-	1	5	5	5	7	23
Wood & Paper	2	-	-	-	-	-	1	1	1	2	5
Industrial Machinery	4	-	-	-	-	1	4	4	4	4	17

Mining	4	-	-	-	-	2	2	4	4	4	16
Chemistry	2	-	-	-	-	-	2	2	2	2	8
Health Services	5	-	-	1	1	2	4	4	5	5	22
Transportation & Parts	13	1	1	1	2	3	6	8	8	13	43
Diverse Services	4	-	-	-	1	3	3	3	3	4	17
Educational Services	2	-	-	-	-	-	-	1	1	2	4
Software and Data	4	-	-	-	-	1	2	3	4	4	14
Textile	5	-	-	1	1	1	4	5	5	5	22
Total Sample	109	2	2	7	15	35	77	88	93	109	428

a) *Free Cash Flow to Equity (FCFE)*

The estimated value of cash available for dividend distribution used in the research follows the logic proposed by Jensen (1986). The following table

presents the calculation formula and the respective data sources of the variables used in the estimate of the FCFE of the companies:

Table 2 : Operational Definition of the FCFE variables

VARIABLE	FORMULA OR NAME AT ECONOMÁTICA	SOURCE
Net Profit	Net Profit	DRE
Depreciation	Depreciation	DFC/DOAR
Fixed Capital Investment	Net Purchase of Permanent Assets	DFC
	$Ou^1 = \text{Application in the Permanent Asset} - \text{Sale of Permanent Asset}$	DOAR
Working Investment Variation	Net Working Capital (t) - Net Working Capital (t-1)	Balance Sheet
New Contracted Debts	Average Indebtedness x (Investment in fixed Capital + Working Investment - Depreciation)	DFC/DOAR/BP
Average Indebtedness	$= (\text{Average burdensome liabilities}) / (\text{Average Investment})$	Balance Sheet
Burdensome Liabilities	$= \text{Total Long-term Loan and financing} + \text{Total Short-term Loan and Financing}$	Balance Sheet
Investment	$= \text{Burdensome Liabilities} + \text{Equity}$	Balance Sheet

Note: ¹ For calculating the Investment on Fixed Capital, the main source used was the DFC, however, since it became a requirement only in 2007 with the Law 11,638/2007, the DOAR was adopted as an alternative source to the lack of data

i. *Distributed FCFE*

Comparatively, while the conventional measure of the dividend policy - payout – provides the dividend value as a profit proportion, the distributed Free Cash Flow to Equity measure the total funds given back to the shareholders as a proportion of the FCFE. In this way, the distributed FCFE shows which cash value available to be distributed to the shareholders was effectively passed on to them as dividends and, in the case of Brazil, interest on equity capital.

Therefore, adapting it to the Brazilian scenario, the distributed FCFE calculation formula used in this research is described as follows:

$$\text{Distributed FCFE} = \frac{(\text{Dividend}_t + \text{IOEC}_t)}{\text{FCFE}} \quad (1)$$

Where: Dividend t= dividends paid per share in the period x number of shares in the period; IOEC:

Interest on Equity Capital t = interest on net assets per share in the period x number of shares in the period.

ii. *FCFE Holding*

Following the same methodology of calculation of the distributed FCFE, considering, however, just the cash balance held, which theoretically should be with the shareholders, there is the FCFE Holding variable, described as follows:

$$\text{FCFE Holding} = \frac{\text{FCFE Held}}{\text{FCFE}} \quad (2)$$

Where: FCFE Held = positive balance of the difference between the FCFE and the dividends and the total interest on equity capital paid. In theory, the closer to 1 this index is, the greater the overinvestment level

incurred by the company and, consequently, the greater its loss of economic value, causing the destruction of the co-owners' wealth.

b) *Relation between the Research Variables and the Development of Hypotheses*

According to Jensen's (1986) Free Cash Flow Theory, the Free Cash Flow to Equity represents the amount of profits a company can and must distribute to its owners as proceeds. In other words, it is the excess of funds which can be returned to the shareholders at the end of a period, after all the costs and expenditures incurred have been covered and, also all the company's investment needs have been met.

Thus, holding the cash balance available to the shareholder is not justified, since the company's funds would be reinvested beyond the necessary amount; it is very possible those investments would be with negative current value, increasing, consequently, the company's growth pace beyond the level considered as optimal.

Following this logic, the theory foresees that the FCFE Holding, whatever it is, destroys the company's economic value, affecting the wealth generation of its owners.

Therefore, as granted in this work, despite its limitations, the best measure to express the company's economic value and the quality of the decisions taken, among them the FCFE Distribution, it is the share Market value. Then, the generation or destruction of the shareholders' wealth must be theoretically expressed in the Share Rate of Return.

Hence, according to the theoretical foundations discussed up to this point, the expected relation between the distributed FCFE and the SRR would be positive, as the following null hypotheses of the research suggest:

H_{01} – The SRR ascertained by the companies which retain FCFE is *greater* than the other companies'.

H_{02} – The SRR ascertained by the companies which distribute *more* funds than the one available in FCFE is *lower* than the one of the companies which hold FCFE.

H_{03} – The SRR ascertained by the companies which return approximately the *same* amount of available funds in FCFE is *lower* than the other companies'.

On the other hand, the expected relation between the FCFE Holding variable and the SRR would be negative, as the fourth null hypothesis of the research proposes:

H_{04} – The *greater* the holding level of FCFE ascertained by the companies, the *greater* the shareholders' SRR.

c) *Techniques of Data Analyses*

In the research, both dependence and interdependence techniques were used for the analysis of data. The dependence technique: Panel regressions and the interdependence technique: cluster analysis. For the performance of the panel tests, the software STATA® was used and for the cluster analysis, the software SPSS® was used.

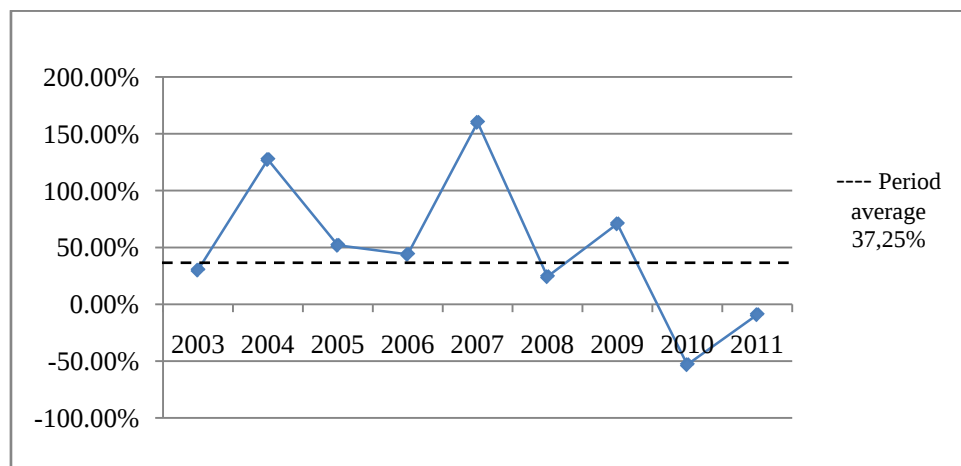
It is important to highlight that for the application of the tests mentioned, the data classified as *outliers* were excluded, that is, the ones with value at three standard deviation above or below (+3 or -3) the average of the observations.

V. OVERINVESTMENT

It is understood that the overinvestment in the companies takes place when they hold any part of the balance of the Free Cash flow to Equity (FCFE). Hence, seeking to detect such a problem in the companies studied, the first step was to estimate the FCFE for each one of them and confront it with the total of the dividends and interest on equity capital effectively paid in the period.

Thus, the evidence of overinvestment problems by the companies which keep the best corporate governance practices in Brazil was done by the distributed FCFE and FCFE Holding Variables. Analyzing the following graph, it is possible to observe that there was FCFE Holding in at least five years in the period analyzed, around approximately 50%.

Graph 1 : Yearly Average of the FCFE Distributed by the Companies

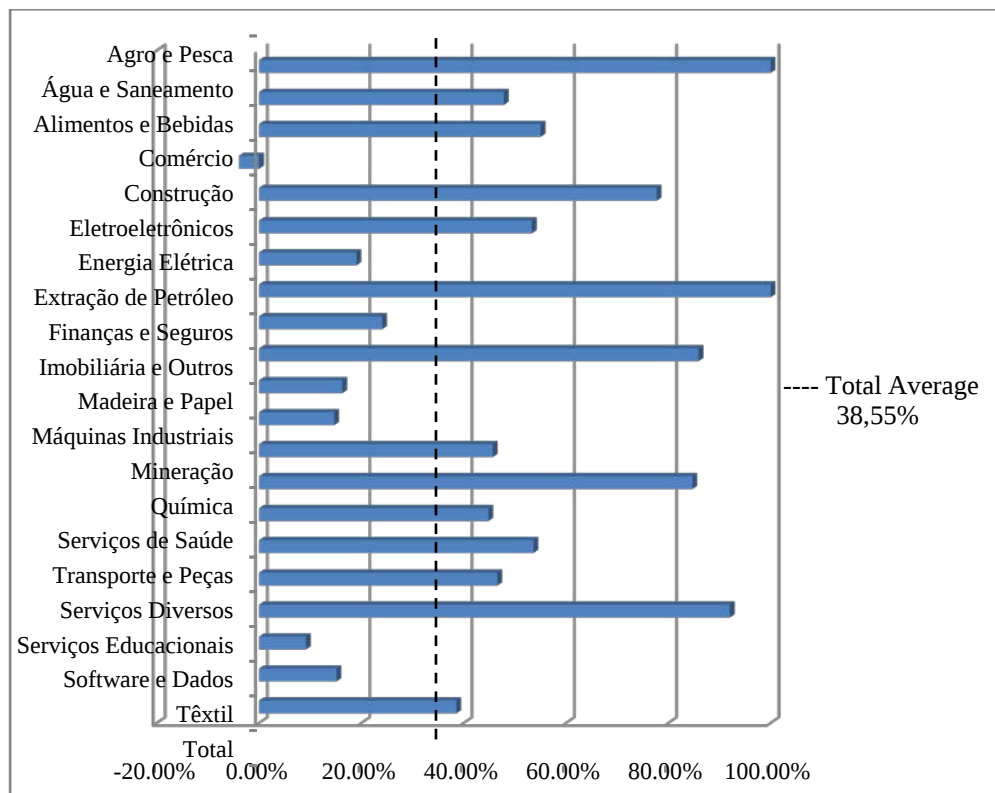


It is important to point out that the interpretation of the results presented by the distributed FCFE variable must be done with caution, since the values in (0%), ascertained by some companies in the period, can either mean that the companies retained the whole balance of FCFE calculated for the year, incurring in extreme overinvestment levels, or can have presented negative FCFE in the year and opted not to distribute dividends to the shareholders.

Due to this inconsistency in the interpretation of the distributed FCFE results, which consider both the

positive and negative balances of FCFE in its calculation formula; it was opted to carry out a second analysis in order to detect the overinvestment in companies, this time with the FCFE Holding index, which takes into account only observations which ascertained positive FCFE balance in the period (approximately 60% of the total observations). Its results are illustrated in the following graph:

Graph 2 : FCFE Holding Level in the Sectors



In general, through the results presented by the distributed FCFE and FCFED Holding variables, it was observed that the fact the companies studied have good corporate governance structure was not the determining factor so that most of them did not present overinvestment along the period analyzed, contradicting the expectations and results verified in studies carried out in the United States, such as the ones of Harford et al. (2008) and Billett et al. (2011).

VI. OVERINVESTMENT AND SHARE RETURN

a) Distributed FCFE and Share Rate of Return (SRR)

At first, the observations were distributed from the confrontation between the amount of FCFE ascertained with the total value of Dividends and Interest on Equity Capital paid in the period, forming "three portfolios" according to the possible situations, that is: $\text{Dividend} < \text{FCFE}$; $\text{Dividend} > \text{FCFE}$ and $\text{Dividend} = \text{FCFE}$. The goal was to set comparisons between the average SRRs ascertained by the groups of companies in the period.

Table 3 : Average of the period of Share Rate of Return according to the distribution of FCFE

Groups	I			II			III			IV		
Sector	Dividend < FCFE			Dividend > FCFE			Dividend = FCFE ¹			Dividend = FCFE ²		
	Obs.	Average	VC	Obs.	Average	VC	Obs.	Average	VC	Obs.	Average	VC

Agro and Fisheries	6	2.5%	14.9	5	28.9%	3.3	8	-16.8%	-4.4	0	-	-
Water and Sanitation	8	44.1%	1.0	3	5.4%	5.6	0	-	-	2	37.1%	0.1
Food and Beverage	9	18.1%	2.7	16	14.4%	4.4	6	11.3%	7.4	0	-	-
Commerce	7	60.6%	1.7	12	-16.7%	-3.1	2	106.4%	1.2	4	56.4%	1.2
Construction	32	4.3%	22.5	36	38.4%	3.1	6	55.5%	2.1	3	92.9%	0.7
Electrical & Electronics	5	26.9%	4.6	4	1.2%	58.9	0	-	-	0	-	-
Electrical Energy	12	32.4%	0.8	13	37.1%	0.5	3	6.2%	14.2	2	46.0%	0.0
Oil Extraction	2	119.3%	1.2	0	-	-	3	-45.9%	-0.4	0	-	-
Finance and Insurance	7	33.4%	2.5	7	43.9%	1.0	0	-	-	0	-	-
Hotel	0	-	-	0	-	-	3	-6.0%	-6.6	0	-	-
Real Estate & Others	8	45.1%	1.2	9	18.1%	3.5	4	-27.2%	-2.3	0	-	-
Wood & Paper	1	-36.6%	0.0	4	58.7%	3.2	0	-	-	0	-	-
Industrial Machinery	6	7.4%	6.8	5	15.9%	4.6	3	-55.8%	-0.4	2	-28.3%	-0.9
Mining	8	27.1%	2.1	2	58.3%	1.6	5	109.0%	1.8	1	5.0%	0.0
Chemistry	5	63.1%	1.8	2	-41.8%	-1.3	1	-13.8%	0.0	0	-	-
Health Services	10	35.8%	1.8	7	56.5%	2.4	3	-26.3%	-1.3	0	-	-
Transportation & Parts	16	79.6%	1.6	14	49.7%	2.2	6	-39.5%	-0.9	3	63.5%	0.6
Diverse Services	12	38.3%	2.3	4	14.1%	6.1	0	-	-	1	0.3%	-
Educational Services	2	26.6%	4.1	2	-8.6%	-3.4	0	-	-	0	-	-
Software and Data	7	22.2%	1.4	1	-19.9%	0.0	2	49.8%	2.2	2	28.5%	1.5
Textile	8	45.8%	2.0	6	61.0%	1.5	3	-21.0%	-3.5	3	83.0%	1.2
Total Sample	171	30.2%	2.6	152	22.5%	3.6	58	5.5%	17.5	23	37.6%	1.4

Note: The outliers of the Distributed FCFE and SRR were excluded in all the sectors. VC: Variation Coefficient. Obs.: Number of observations. ¹ Cases with Negative FCFE which did not distribute profit. ² Cases with FCFE holding lower than 10% or with profit distribution up to 10% above the FCFE.

As observed, concerning the group “Dividend = FCFE”, it was decided to separate the observation whose FCFE presented negative balance and no dividend was distributed from the ones that really distributed approximately the same amount of free cash to equity, that is, +10% or -10% of the balance ascertained.

The calculation of the variation coefficient (VC) was carried out to test the consistency of the average of

the SRR's presented by the groups of each sector. It represents, in statistics, the standard deviation expressed as a percentage of the average: (σ/μ) ; and it is understood that the lower its value, the greater the data precision. Statistically, when the variation coefficient goes over 0.5 (50%), it indicates problems with the data. Finally, from the results obtained, the null hypotheses 1, 2 and 3 could be tested and the results were:

Table 4 : Analysis of the Hypothesis of the Research

Sector	Rejected Null Hypotheses	Sector	Rejected Null Hypotheses
Agro and Fisheries	H ₀₁ and H ₀₂	Wood & Paper	H ₀₁ and H ₀₂
Water and Sanitation	H ₀₃	Industrial Machinery	H ₀₁ and H ₀₂
Food and Beverage	None	Mining	H ₀₁ , H ₀₂ and H ₀₃
Commerce	H ₀₁ and H ₀₃	Chemistry	H ₀₃
Construction	H ₀₁ , H ₀₂ and H ₀₃	Health Services	H ₀₁ and H ₀₂
Electrical & Electronics	None	Transportation & Parts	H ₀₃
Electrical Energy	H ₀₁ , H ₀₂ and H ₀₃	Diverse Services	None
Oil Extraction	None	Educational Services	None
Finance and Insurance	H ₀₁ and H ₀₂	Software and Data	H ₀₁ and H ₀₃

Hotel	-	Textile	H ₀₁ , H ₀₂ and H ₀₃
Real Estate & Others	None	Total Sample	H ₀₁ and H ₀₃

In the same way, these hypotheses were tested for all the observations altogether (Total Sample). However, instead of comparing the averages of the whole period of the Share Rate of Return (SRR) between the groups formed, the yearly average rates were compared, as demonstrated in the table that follows:

Table 5 : Yearly Average Share Rate of Return

Total Sample*												
Groups	I			II			III			IV		
Years	Dividend < FCFE			Dividend > FCFE			Dividend = FCFE ¹			Dividend = FCFE ²		
	Obs.	Average	VC	Obs.	Average	VC	Obs.	Average	VC	Obs.	Average	VC
2003	2	244.7%	0.9	0	-	-	0	-	-	0	-	-
2004	1	2.9%	-	1	287.5%	-	0	-	-	0	-	-
2005	3	106.7%	0.3	3	19.5%	1.6	0	-	-	1	64.4%	-
2006	6	87.3%	0.8	3	71.6%	0.8	3	32.7%	1.8	2	99.4%	0.5
2007	17	4.0%	8.5	15	44.9%	1.2	1	308.7%	-	2	-18.7%	-1.4
2008	31	-44.7%	-0.8	27	-50.1%	-0.5	15	-64.6%	-0.4	2	-21.2%	-1.7
2009	37	129.6%	0.6	27	151.1%	0.7	9	153.5%	0.6	3	83.2%	0.9
2010	34	32.0%	1.2	32	32.3%	2.1	13	-2.7%	-11.9	8	68.4%	0.8
2011	40	-6.3%	-4.9	44	-14.6%	-1.9	17	-27.5%	-1.6	5	27.0%	1.4

Notes: The outliers of the Distributed FCFE and SRR were excluded. VC: Variation Coefficient. Obs.: Number of Observations. ¹ Cases with Negative FCFE which did not distribute profit.. ² Cases with FCFE Holding lower than 10% or with profit distribution up to 10% above the FCFE.

Still testing the relation between the Distributed FCFE and Share Rate of Return variables, the panel test was applied aiming to find statistical dependence of the Share Rate of Return, considered the dependent or explained variable, in relation to the Distributed FCFE, considered the independent or predictor variable in the model. Thus, through the linear combination proposed,

the regression statistical equation or model between them was expressed in the following way:

$$SRR_t = \alpha + \beta \text{Distributed FCFE}_t + \varepsilon \quad (3)$$

The following tables show the summary of the estimated tests for each sector:

Table 6 : Summary of the Panel Regression Model between the Distributed FCFE and the SRR

Sectors	Sample	Determining Coefficient (R ²)					Adopted Model*
		Pooled Model	Fixed Effect Model			Random Effect Model	
			Company	Years	Companies and Years		
Agro and Fisheries	19	0.31%	4.70%	33.40%	36.10%	0.30%	RE
Water and Sanitation	13	12.54%	13.40%	84.50%	85.70%	12.50%	RE
Food and Beverage	31	0.70%	8.20%	76.80%	80.00%	0.70%	RE
Commerce	25	1.49%	27.50%	84.40%	87.90%	1.50%	FE
Construction	77	3.49%	9.80%	85.30%	89.80%	3.50%	Pooled
Electrical & Electronics	9	0.89%	3.60%	78.20%	87.60%	0.90%	RE
Electrical Energy	30	0.13%	15.70%	50.60%	59.10%	0.10%	RE
Oil Extraction	5	-	-	-	-	-	RE
Finance and Insurance	14	0.02%	4.40%	92.60%	97.50%	0.00%	RE
Hotel	3	-	-	-	-	-	RE
Real Estate & Others	21	1.54%	13.60%	86.00%	87.20%	1.50%	RE

Wood & Paper	5	0.30%	8.30%	100.00%	100.00%	0.30%	RE
Industrial Machinery	16	4.46%	5.00%	87.20%	94.60%	4.50%	RE
Mining	16	4.02%	14.80%	56.20%	67.40%	4.00%	RE
Chemistry	8	3.26%	3.30%	99.20%	99.20%	3.30%	RE
Health Services	39	0.40%	31.60%	78.50%	87.90%	0.40%	RE
Transportation & Parts	20	13.42%	19.90%	67.10%	76.40%	13.40%	RE
Diverse Services	17	1.20%	3.10%	86.20%	86.80%	1.20%	RE
Educational Services	4	6.95%	53.20%	100.00%	100.00%	7.00%	RE
Software and Data	12	5.18%	11.70%	43.60%	51.80%	5.20%	RE
Textile	20	14.47%	34.80%	66.70%	79.90%	14.50%	RE
Total Sample	404	0.14%	15.30%	56.30%	67.80%	0.10%	Pooled

Notes: ¹ Sector without enough observation for applying the regression test. RA: Random Effects; FE: Fixed Effects. * To identify the most appropriate approach of the panel model in the sectors studied, the statistical tests of Chow (1960), Hausman (1978) and Breusch-Pagan (1979) were performed.

Comparing the R^2 among several sectors, it is observed that the Water and Sanitation, Health Services and Textile sectors were the ones which presented, relatively, the greatest indexes.

Moreover, they were one of the few which ascertained positive adjusted R^2 in the estimation of the

models, indicating, therefore, a greater relative variation in the SRR variable provoked by the Distributed FCFE.

The main results by using the RE procedure are presented in table 6.

Table 7 : Coefficients of the Random Effect Models between the Distributed FCFE and the SRR

Sector	Independent Variable - Distributed FCFE			Constant Variable		
	Coefficient	Standard Error	P> z	Coefficient	Standard Error	P> z
Agro and Fisheries	-0.63389	2.74848	0.818	-0.00337	0.17965	0.985
Water and Sanitation	0.20514	0.16332	0.209	0.26520	0.12168	0.029
Food and Beverage	0.25311	0.05615	0.652	0.14463	0.11253	0.199
Commerce	0.06022	0.23998	0.802	0.18416	0.36613	0.615
Construction	-0.10624	0.05499	0.847	0.33500	0.07267	0.000
Electrical & Electronics	-	-	-	-	-	-
Electrical Energy	-0.00472	0.09848	0.962	0.39088	0.20099	0.052
Oil Extraction	-	-	-	-	-	-
Finance and Insurance	0.32369	0.59364	0.586	0.20872	0.14013	0.136
Hotel	0.07101	0.74716	0.924	0.39870	0.85779	0.642
Real Estate & Others	0.11822	0.14625	0.419	-0.86554	0.14558	0.552
Wood & Paper	-0.49065	0.64114	0.444	0.65603	0.33249	0.048
Industrial Machinery	0.52047	1.15666	0.653	0.27624	0.37856	0.466
Mining	-0.00980	0.02548	0.701	0.50691	0.18412	0.000
Chemistry	0.57750	0.34567	0.095	0.13803	0.23065	0.550
Health Services	-0.13500	0.31576	0.669	0.32402	0.21298	0.128
Transportation & Parts	0.21957	0.56819	0.699	0.16252	0.44527	0.715
Diverse Services	0.24599	0.33269	0.460	0.12486	0.21006	0.552
Educational Services	0.25736	0.14747	0.081	0.32941	0.20264	0.104

Notes: Sector without enough observation for applying the regression test. P>|z| corresponds to the probability value associated to the z statistics of each estimated coefficient.

Observing the values of the table, it can be seen that in most of the sectors, the sign of the β coefficient turned out positive, therefore confirming the initial expectations. However, through the Z test, it was not verified statistical significance in any of them,

harming, consequently, the validity of the estimated models.

The next table presents the main results by using the FE procedure, adopted only in the Commerce.

Table 8 : Coefficients of the Fixed Effect Models between the Distributed FCFE and the SRR

Sector	Adopted FE Model	Independent Variable - Distributed FCFE			Constant Variable		
		Coefficient	Standard Error	P> t	Coefficient	Standard Error	P> t
Commerce	Company	-0.56119	0.26269	0.047	-0.28021	0.41638	0.510
	Years	0.09706	0.09141	0.303	-0.40652	0.16742	0.027
	Companies and Years	0.03399	0.16835	0.843	-0.75131	0.26389	0.015

Note: $P> |t|$ corresponds to the value of probability associated to the t statistics of each estimated coefficient

According to table 7, the only β coefficient statistically significant is verified in estimating the FE models when the individuality of each case (Company) of the cross-section is considered. However, the signal was negative, contradicting the linear combination proposed.

Finally, the next table shows the main results using the Pooled procedure, equivalent to the application of a simple or multiple regressions. As it can be seen, the signals of the β coefficients are negative, presenting, therefore, no statistical significance.

Table 9 : Coefficients of the Pooled Models between the Distributed FCFE and the SRR

Sector	Independent Variable - Distributed FCFE			Constant Variable		
	Coefficient	Standard Error	Sig.	Coefficient	Standard Error	Sig.
Construction	-0.06300	0.03800	0.104	0.28700	0.12200	0.021
Total Sample	-0.01200	0.01500	0.458	0.28700	0.04400	0.000

In general, it is seen that the results presented up to here indicated weak relation between the Distributed FCFE and the Share Rate of Return in terms of individual observations. However, when these same observations were seen as a whole along the period, through average analyses, the hypotheses of the research could be confirmed in most of the sectors, suggesting an expected positive association between the two variables, as expected.

b) FCFE Retention and Share Rate of Return (SRR)

Seeking another way to evidence whether the overinvestment problems effectively lead to the shareholders' wealth destruction, only the companies of the New Market which ascertained positive balance of FCFE in the period were analyzed. Thus, the relation between the retention of FCFE and Share Rate of Return (SRR) variables was tested.

Hence, aiming to extract information of the companies as a whole, it was decided to gather them without any previous definition concerning either the number of groups or its structure, but only through their common traits concerning the level of FCFE Retention.

Therefore, adopting a practical judgment, from the theoretical fundamentals on which this work lies, for applying the cluster analysis, it was chosen to consider the formation of three clusters to analyze the empirical relation between the two variables, using the average linkage hierarchical method, according to which the grouping criterion is the distance of all the objects (companies) of a group in relation to the all the ones of another group.

Besides, the method mentioned tends to combine groups with lower internal variations. The table that follows presents the results:

Table 10 : Result of the Cluster Analysis according to the level of FCFE Holding (Three Clusters)

Clusters	I		II		III	
Level of FCFE Holding	High		Medium		Low	
Observations	79		61		40	
Indexes	Average	VC	Average	VC	Average	VC
FCFE (in millions of R\$)	258.3	1.4	472.4	1.1	430.1	1.2
Dividend (in millions of R\$)	24.7	1.7	176.4	1.2	330.8	1.2
FCFE Holding	92.2%	0.1	62.8%	0.1	24.9%	0.6
Share Rate of Return (SRR)	24.6%	3.2	26.1%	2.5	27.9%	2.0

Note: VC: Variation Coefficient

The calculation of the variation coefficient (VC) was performed to test the consistency of the average of the SRR's presented by the groups formed. It is understood that the lower its value, the greater the accuracy of the data. Statistically, when the VC surpasses 0.5 (50%), it indicates problems with the data.

Anyway, testing the Null hypothesis of the research 4 (H04), which proposes that the greater the FCFE Holding level ascertained by the companies, the greater the Share Rate of Return obtained by the shareholders; it was verified that the results of the groups formed rejected it, since it was determined that the average rate of the SRR's in the period were greater while the FCFE Holding level decreased, suggesting an expected negative association between the two variables and, also, confirming the results of some international works, such as the ones of Kallapur (1994) and Harford et al. (2008) who identified, in the United States, that companies with cash excess presented lower returns and evaluations by the market.

VII. FINAL CONSIDERATIONS

When looking at the companies which seek constantly to improve their management mechanisms, through the adoption of the recommendations prescribed in the concepts developed by the corporate governance, which deep down is nothing more than valuing, above anything else, the shareholders' wealth maximization; it is expected that the overinvestment problem is one of the unbalances fought against by them.

In Brazil, the public companies which worry the most about following the best corporate governance practices are identified in a differentiated negotiation segment of the stock Market, the New Market. Thus, it was expected to find low levels of overinvestment in those companies, through the calculated indexes of Distributed Free Cash Flow to Equity and FCFE Holding.

However, what was verified was that there really was the occurrence of overinvestment by these companies since the results obtained through the Distributed FCFE index revealed that almost half of the

observations studied (42%) reinvested the profit part which should be out of the company, that is, in the shareholders' ownership. Corroborating this unbalance in relative terms, through the FCFE Holding index, a level of considerably high overinvestment was detected in the period analyzed, with an average of 38%.

Hence, it was observed that the fact that the companies studied seek good corporate governance structure ended up not being a determining factor so that most of them did not present overinvestment along the period analyzed, contradicting the expectations and results ascertained in other studies carried out abroad, such as the ones of Harford et al. (2008) and Billett et al. (2011).

Endless factors could have been the cause of this cash holding by the companies, since in certain moments, many of them could not have been secure of their future financing needs and preferred to hold cash as an alternative source of funds, once it is known that the Brazilian Money Market is characterized by high financial burden and lack of long-term funds. It is also possible that some of them may have had financial restriction and, thus, the creditors restricted the return of funds to the shareholders. Moreover, some of the companies can present volatile profits and decided to hold funds to standardize the dividends along the time, since in Brazil there is the obligation of a minimum percentage dividend payout and, also, evidences of clientele effect, indicating preference of the investors by shares that continuously distribute more dividends.

Adding to this, another regulatory aspect which can have influenced these calculations refers to the calculation basis of the dividends in Brazil, from a conservative stance, allows the companies to proceed to certain adjustments in the net taxable income aiming to reduce the value of calculation basis of the dividends.

Ultimately, among other things, the mechanisms of corporate governance of the New Market can have been inefficient in trying to balance the rights between the several interested parts of the company and, consequently, the managers and majority shareholders would have been benefiting by the holding of these funds.

Nonetheless, if the fact of the occurrence of overinvestment becomes a problem for the companies, it must cause the destruction of its economic value, expressed in the negotiation value of its shares in the Market.

Nevertheless, even considering that the companies studied differ from each other in relation to the corporate governance practices and disclosure levels, implicating, naturally in greater pricing of their shares, making their Market value get closer to their fair value, it is known that the concept of the share Market value to define the value of the company presents restrictions in the several markets worldwide and, specially, in the Brazilian financial environment, characteristically speculative, marked specially by high level of share concentration and high volatility in the share prices.

Aware of this, the results presented indicated a little association between the overinvestment level and the value creation when analyzing the observations in individual terms, in which it was tried to test the relation between the proportion of Distributed FCFE and the variation in the Share Rate of Return (SRR). Nevertheless, when the data analysis was performed in order to group these same observations according to the level of distribution or FCFE Holding in the period, the hypotheses of the research could be confirmed in almost all the sectors, suggesting an expected association between the variables and denoting the existence of a certain negative relation between the overinvestment level with the value creation, reflected in the share rate of return (SRR).

Broadly, the results ended up confirming the findings of some international studies such as the ones of Kallapur (1994) and Harford et al. (2008) who identified, in the United States, that companies with cash excess presented lower returns and evaluations by the Market.

NOTES

1. Klein (1985) justifies the nonexistence of the complete agreement due to the traits which are particular of the business environment, marked by discontinuities and uncertainties.
2. Jensen & Meckling (1994), explained that due to the fact the human nature is noticeably utilitarian and rational, oriented more for its own preferences and its own goals, it becomes impossible to motivate the agent to behave in an indifferent way when maximizing its interests and the ones of the third parties.
3. In Brazil, the dividends were taxed with an income tax rate of up to 23% until 1989. From 1989 on, the dividends became tax-free and, in 1994 and 1995, they became taxed once more through the income tax, with a 15% rate. Finally, from 1996 on, the

dividend yield for any partner of shareholder, independently from the nationality, became tax-free in the income tax.

4. In the United States, the tax rates for dividends are historically higher than the rates for capital gains. However, from the 1986 Tax Reform Act – TRA on, the capital gains with the share appreciation started having the same tax incidence that the dividend gains.
5. According to the article 202 of the Law 11,638/2007, the company is forced to distribute 50% (fifty percent) of the adjusted net profit when its by-laws fails or when it has not precisely defined the distribution of it. Nonetheless, the company's articles of incorporation are sovereign to the Law to deliberate on the profit distribution to the shareholders, as long as they contain an article which regulates the dividends. However, the same article 202 of the Law of the Public Limited Companies states that if the General Meeting deliberates to alter the bylaws to introduce norm concerning the profit yield, the mandatory dividend cannot be lower than 25% of the net profit.
6. Since December, 2004, the income tax on capital gains has been 15% in Brazil. The tax must be paid the moment the bonds are sold, when the gains are accomplished.

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